IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

ENVIRON PRODUCTS, INC.	:	CIVIL ACTION
	:	
v.	:	
	:	
INTELPRO CORPORATION and	:	
TOTAL CONTAINMENT, INC.	:	NO. 97-707

TOTAL CONTAINMENT, INC. and	:	CIVIL ACTION
INTELPRO CORPORATION	:	
	:	
v.	:	
	:	
ENVIRON PRODUCTS, INC.	:	NO. 97-1020

MEMORANDUM AND ORDER

FULLAM, Sr.J. SEPTEMBER , 1998

The issues to be decided on the pending cross-motions for summary judgment are: (1) the validity of several patents issued to Keith Osborne and now controlled by Total Containment, Inc. ("TCI"); and (2) assuming the validity of the patents at issue, whether the GeoFlex product manufactured by Environ Products, Inc.("Environ") infringes one of them.

I. Background

In recent years, environmental concerns have highlighted the desirability of

preventing leakage and seepage from underground tanks and pipes containing or carrying petroleum products. Such leakage can occur because of corrosion or other chemical reactions between underground pipes and the liquid they carry, or between underground pipes and the surrounding soil. Leakage can, of course, also occur because of physical damage to the pipe itself, and can result from events ranging from natural or manmade disasters to the normal settling and shifting of the earth's surface.

In 1988, inventor Keith Osborne applied for a patent covering a secondarily-contained flexible underground piping system for use with hazardous materials such as gasoline. This system was envisioned as enabling removal of the inner pipe while the outer pipe remains *in situ*, thus eliminating the need for excavation of the entire system in the event that repairs were needed. A critical feature of Osborne's system was the enclosure of all pipe couplings within access chambers. While Osborne's application was pending, inventor Michael Webb, then president of TCI, applied for and received a patent (U.S. Patent No. 4,971,477 ("the '477 Patent"), assigned to TCI) for a similar invention. Osborne requested an interference; after a lengthy and contentious proceeding against TCI, Osborne was declared the senior party and the '477 patent was nullified. In 1996, Osborne was issued U.S. Patent No. 5,553,971 ("the '971 Patent"). Prior to this, Webb left TCI to form Environ, and patented and began marketing its "GeoFlex" system, apparently with no little success. The hallmark of GeoFlex, described as a "coaxial, direct-bury" system, is that the inner pipe is not removable. TCI and other companies are now also marketing nonremovable systems.

In 1995, Osborne, now allied with TCI as a result of a settlement agreement (the subject of an earlier action in this court), applied for and received two patents based on his

original application. The first, U.S. Patent No. 5,590,981 ("the '981 Patent"), deleted any mention of removability of the inner supply pipe. The second, U.S. Patent No. 5,567,083 ("the '083 Patent"), claims a removable inner pipe. Environ brought a declaratory judgment action against TCI (the assignee of the Osborne patents) and Intelpro Corporation ("Intelpro"), the owner of the patents at issue, seeking to have the Osborne patents declared invalid, or at least not infringed by Environ's products. TCI and Intelpro, for their part, filed a separate action alleging that Environ is wilfully infringing the '981 patent.

Environ contends that the Osborne patents are obvious in light of the prior art, and that many of their claims are anticipated by the 1987 publication, only recently brought to light, of a Japanese invention ("the Maeshiba reference") designed to prevent leakage from fuel pipes in earthquake-prone areas. Obviousness -- that is, whether "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art," see 35 U.S.C. §103(a) -- is a question of law based on factual inquiries concerning (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) secondary considerations, such as commercial success, long-felt needs or the failure of others. See Graham v. John Deere, 383 U.S. 1, 17-18 (1966). In addition, obviousness based on a prior art reference requires that there be some suggestion or motivation for the inventor to modify that reference or to combine one or more references, either implicit or explicit in the art. See B.F. Goodrich Co. v. Aircraft Braking Systems Corp., 72 F.3d 1577, 1582-83 (Fed. Cir. 1996). For a claim to be anticipated, on the other hand, requires that each and every element of that claim be present in a single prior art

reference. See Gechter v. Davidson, 116 F.3d 1454, 1457 (Fed. Cir. 1997). Anticipation is a question of fact, see Rowe v. Dror, 122 F.3d 473, 478 (Fed. Cir. 1997), as is the issue of what the prior art teaches. See In re Graves, 69 F.3d 1147, 1152 (Fed. Cir. 1995), cert. denied, 517 U.S. 1124 (1996).

II. Anticipation by Maeshiba and Obviousness of the Osborne Patents.

A. Prior art.

Thanks in no small part to the litigiousness of the parties, this Court has the benefit of a much larger number of prior art references than the Patent Examiner considered. A list of the most relevant references, including the key claims of each, follows:

1. U.S. Patent No. 745,351 (Hungerford 1903), a water supply system, discloses a rigid supply pipe with couplings disposed within underground chambers (accessible via manholes).

2. U.S. Patent No. 3,721,270 (Wittgenstein 1973), a fuel piping system designed to reduce the risk of pollution, discloses a secondarily-contained pipe and multiple access chambers.

3. U.S. Patent No. 2,507,597 (Holdridge 1950), an airport fueling system, discloses couplings disposed in covered pits.

4. U.S. Patent No. 4,639,164 (Pugnale 1987), an underground tank sump and piping system designed to prevent leaks and spills into the environment, discloses double-walled pipes that run between underground sumps and above-ground dispensers.

5. Owens-Corning product literature (with a copyright date of 1985)

discloses a pump disposed within an underground containment sump to prevent spills and leakage from the pump and its piping connections. A means for sensing such leakage is also disclosed.

6. U.S. Patent No. 4,159,027 (Caillet 1979) discloses a compression fitting.

7. U.S. Patent No. 1,188,446 (Haines 1916), a gasoline supply system, discloses a second flexible supply pipe connected by a fitting to the supply pipe.

8. British Patents 1,374, 874 and 1,390,280 and U.K. Patent Application 2,023,296 disclose means for detecting leaks within the space between flexible double-walled pipes and/or inner and outer pipes.

9. U.S. Patent No. 2,336,150 (Horvath 1943), an airport gasoline dispensing system, discloses a flexible pipe connected to the supply pipe.

10. U.S. Patent No. 4,062,376 (McGrath 1977), a service connection between and water main and a meter inside a building, discloses a service conduit that is removable and replaceable through a leakage conduit with minimal excavation.

11. U.S. Patent No. 648,128 (Kinniburgh 1900), a system for laying supply pipes, discloses a removable and replaceable inner pipe enclosed in an outer pipe.

Whether the Osborne patents are obvious in light of the foregoing references is a close question. It is one that need not be answered however, in light of the recent discovery of the Maeshiba reference. There can be no serious dispute[1] that Maeshiba clearly discloses a

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[1] While the parties have procured dueling experts, I find there to be no *material* dispute as to the operative facts-- that is, what appears on the face of the patents and other documents at issue. Construction of the claims encompassed by a patent, of course, is a question of law for the court. See Markman v. Westview Instruments, Inc., 517 U.S. 370 (1996).

secondarily-contained gasoline piping system with a flexible inner pipe housed within an outer containment pipe, and two spaced access chambers with couplings disposed within the chambers.

B. Comparison of the Osborne patents to the prior art.

The ‘083 Patent in its entirety, as well as many claims of the ‘981 and ‘971 Patents, are anticipated by Maeshiba; the remaining claims are obvious in light of prior art references, either alone or in combination. Specifically, Maeshiba discloses all elements of all claims (1 and 2) of the ‘083 Patent, all elements of claims 1-3 and 6 of the ‘981 Patent, and all elements of claims 8-9, 13, 15, 17-22, 24, 26-27 and 36 of the ‘971 Patent. The remaining claims of the ‘981 Patent (4, 5, 7, and 8) are disclosed by Hungerford, Wittgenstein and Holdridge. The elements of claim 1 of the ‘971 Patent are disclosed by Maeshiba, Pugnale, the Owens-Corning product literature, Wittgenstein and/or Hungerford. The compression fitting disclosed in claims 2, 3 and 4 of the ‘971 Patent is well-known in the art, and is disclosed, for example, by Caillet. All elements of claim 5 are disclosed by Maeshiba, Pugnale, the Owens-Corning publication, Hungerford and/or Wittgenstein. Liquid sensors (disclosed by claims 6 and 7) are also disclosed by the British patents, the U.K. patent application and the Owens-Corning literature; moreover, inventor Osborne concedes that these are well known in the art. The inventor has admitted that the sealing assembly disclosed by claim 10 is not patentably distinct subject matter. The “annular cuff” described in claim 11 also appears in the Owens-Corning product literature. The inventor has admitted that the sealing assembly described in claim 12 is well known in the art and not patentably distinct. Haines and Horvath disclose the second supply pipe described by claim 14 of the ‘971 Patent. The second flexible supply pipe connected by a “fitting” to the

supply pipe described in claim 16 is likewise disclosed by Haines and Horvath. The gravity drainage described in claim 23 is disclosed by Maeshiba; in any event it is likely that this method of drainage has been in constant use since the Stone Age. The "fluid sensing means" of claim 25 is disclosed by the British patents and the U.K. patent application, and are admitted to be well known in the art. All elements of claim 28 are disclosed by Maeshiba, Hungerford and/or Wittgenstein. Again, leak sensors as described in claim 29 are admittedly well known in the art, and are disclosed by the British patents and the U.K. patent application. An access chamber located beneath a fuel dispenser with a coupling located in at least one of the access chambers (claim 30) is present in Maeshiba. Similarly, Maeshiba discloses one access chamber beneath a fuel dispenser with another access chamber not located beneath a fuel dispenser (claim 31). The elements of claim 32 are disclosed by Maeshiba and/or Wittgenstein. Maeshiba's outer containment pipe is flexible (claim 33). Claim 34's "annular cuff and tightening band assembly" is not patentably distinct. The elements of claim 35 are disclosed by Maeshiba, Wittgenstein and/or Hungerford; the use of multiple access chambers would be an obvious modification to Maeshiba. All elements of claim 37 are present in Maeshiba, Wittgenstein and/or Hungerford. The flexible outer pipe described in claim 38 is present in Maeshiba; therefore, the pipe may be bent. Claim 39 describes the ability of the containment pipe between adjacent chambers to bend 90º; the Maeshiba reference states "it is possible to form protective pipe ... into the same shape as required at elbow part ... of gasoline suction pipe ... which has a right-angle bend...." Claim 40 requires that the secondary containment pipe be large enough to permit substitution of larger diameter supply pipes; this is inherent in Maeshiba, where there is a space between the inner and outer pipes great enough to permit the removal and replacement of the former. Claim 41

specifies that the outer pipe be made of reinforced rubber or plastic; Maeshiba's outer pipe "uses a flexible material, for example, oil-resistant polyester resin or other oil resistant rubber. And by embedding spiral shape steel wire ... in the peripheral wall of protective pipe ..., it bears the underground pressure of the earth and achieves a balance between flexibility and hardness according to the fluctuation in the underground layer." The sealing assembly disclosed by claims 42 and 43 is admittedly not patentably distinct; again, the cuff described in claim 44 is also present in the Owens-Corning product literature, and presumably elsewhere. Claim 45 requires that the outer pipe be large enough to accommodate the bend radius of the inner supply pipe; this is inherent in Maeshiba (as it would be in any system envisioning a removable, replaceable inner pipe). Leak sensors (claims 46 and 47) are disclosed by the British patents and the U.K. patent application, and are admitted to be well-known in the art. Finally, claim 48 of the '971 patent requires that the ratio of the diameter of the inner pipe to the diameter of the outer pipe be approximately 2:4. Figure 2 of the Maeshiba publication shows a cross-section of the inner and outer pipes, where the inner pipe is depicted as having roughly one-half the diameter of the outer pipe.

C. Level of ordinary skill in the art.

The parties are in rare agreement that a person of ordinary skill in the art need not have an advanced degree or an engineering background; indeed, the main requirement appears to be on-the-job experience with storage and containment of hazardous fluids.

D. Secondary considerations.

TCI contends that the commercial success of Osborne's invention -- including the license revenues the patents have generated for the inventor -- and the fact that it filled a long-felt need while others tried and failed, are indicative of its non-obviousness. Assuming this to be true, secondary considerations will not overcome a clear showing of obviousness based on the prior art, which remains the primary focus of the inquiry. And it bears pointing out that at least three inventors -- Osborne, Webb, and Maeshiba -- arrived at essentially the same solution at more or less the same time, which tends to support a finding of obviousness. Mr. Osborne may have been first off the mark in commercially exploiting the invention, but Maeshiba was still first in time.

The essence of Osborne's invention is fully present in the Maeshiba reference, with the exception of some peripheral and well-known elements and design choices (e.g. compression fittings, an integral annular cuff, leak sensors, etc.); the suggestion to combine Maeshiba with one or more other references is implicit in the prior art, given the system's intended purpose.

III. Infringement

Having found that the Osborne patents are invalid for the reasons expressed above, it is not necessary to reach the issue of whether Environ's products infringe upon them. Nevertheless, given the lengthy history of litigation between the parties and the near-certainty of an appeal from this decision, I will assume for purposes of the following discussion that the Osborne patents are valid.

The '981 Patent contemplates that liquids will be transported in a flexible inner pipe made of materials highly resistant to chemical damage or corrosion, surrounded by a larger

outer pipe which provides protection against damage, and constructed in such a way that any liquid which might leak from the inner pipe will still be contained in the outer pipe and will flow to a sump, from which it can be readily removed without environmental damage. In addition, because the pipe is flexible, fewer joints are required -- past experience suggests that joints are more prone to leakage and damage -- and the inner pipe can be extracted for repair or replacement, without the need for excavation of the outer pipe. The embodiment of the invention shown in Osborne's patent application shows a rather large outer pipe, and a significant space between the inner and outer pipes.

In the GeoFlex product, on the other hand, the inner pipe fits snugly within the outer pipe, and cannot be removed. Although it has the outward appearance of being but a single pipe, made of two different substances laminated together, upon close examination it appears that the inner pipe has, on its exterior surface, a series of small ribs or projections which create a very small space between the inner and outer pipes. It is claimed that this spacing is sufficient to contain any seepage from the inner pipe, so as to prevent dispersal into the surrounding soil.

The precise issue to be resolved is whether the removability of the inner pipe is an inherent feature of the '981 patent, or whether the claims should be read to cover all forms of double piping. The language of claim 1 of the '981 patent does not clearly specify, one way or the other. It describes "a secondarily contained piping system comprising: (a) a flexible inner supply pipe; (b) an outer secondary containment pipe; ... (e) said flexible inner supply pipe positioned to provide a path of fluid communication...."

On the other hand, the patent drawings depict an inner pipe which is not attached to the secondary containment pipe, and is therefore plainly removable. While a court may not

import specification limitations into a patent claim, a claim may be read in light of the specification. And, more importantly, the prosecution history shows that Mr. Osborne, in the prosecution of a related patent (U.S. Patent No. 5,098,221, or the '221 patent, a continuation-in-part of the original application) argued that his invention was patentable over the prior art because of the removability/replaceability feature of his invention.

It is appropriate to construe the patent claim in light of the prosecution history. See Laitram Corp. v. Moorehouse Indus., Inc., 143 F.3d 1456, 1461 (Fed. Cir. 1998). There can be no doubt that the ability to repair or replace the inner pipe which carries the liquid, without having to excavate, has always been stressed as the principal accomplishment of the '981 invention. The recent attempts to characterize the removability feature as merely one "preferred embodiment" of the basic invention cannot overcome the prosecution history, and can properly be dismissed as litigation-inspired afterthoughts. Environ's product does not infringe the '981 Patent.

IV. Invalidity of the '981 Patent under §112

Even were I to find that the '981 Patent claims are not limited to a removable system, the '981 Patent would be invalid pursuant to 35 U.S.C. §112, because it fails to fully and completely describe such an invention in the patent specification. While Osborne deleted any mention of removability from the *claims* of the '981 Patent, the remainder of the patent is replete with references to the removability and replaceability features of the invention; it is silent as to

how the invention would function or appear as a nonremovable system. Environ must prove by clear and convincing evidence that the removability/replaceability feature was an essential element of the original invention, but was omitted from the claims of the '981 Patent. Environ has met its burden.

An Order follows.

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O R D E R

AND NOW, this day of September, 1998, IT IS ORDERED:

1. Environ's motion for summary judgment of invalidity of the Osborne patents is GRANTED.

2. Environ's motion for summary judgment on the issue of noninfringement is GRANTED.

3. Environ's motion for summary judgment of invalidity of the '981 patent under 35 U.S.C. §112 is GRANTED.

4. TCI's motion for partial summary judgment is DENIED.

5. Environ's motion for pretrial interpretation of the claims of the patents-in-

suit is DISMISSED AS MOOT.

6. All pending motions to preclude evidence are DENIED.

7. The motion by non-party White and Williams LLP to quash subpoena is DISMISSED AS MOOT.

8. IT IS DECLARED that the claims of U.S. Patents Nos. 5,567,083, 5,590,981 and 5,553,971 are INVALID pursuant to 35 U.S.C. §§102 and 103.

9. IT IS DECLARED that Environ's GeoFlex product does not infringe U.S. Patent No. 5,590,981.

10. IT IS DECLARED that the claims of U.S. Patent No. 5,590,981 are INVALID pursuant to 35 U.S.C. §112.

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Fullam, Sr.J.